integer of from 1 to (m-1),

Especially preferred are the following compounds: (1) Xis carbon, Y is oxygen and Z is aluminium; (2) at least one of three R^1's is an aromatic hydrocarbon group having from 6 to 30 carbon atoms; (3) three R^1's are all hydrocarbon groups each having at least one carbon atom; (4) three R^1's are all aromatic hydrocarbon groups each having from 6 to 30 carbon atoms, preferably phenyl groups; (5) R^2 is an alkyl group having at least 2 carbon atoms.

Concretely, more preferred those where R^1's are all phenyl groups, X is carbon, Y is oxygen, Z is aluminium, n = 1, and R^2 is an isobutyl group.

The compounds for the component (C) are not specifically defined for their production method, so far as they have the structure of the formula mentioned above, but preferred are those produced by reacting <1> at least one selected from compounds of a general formula, $(R^1)_3$-C-OR^1, R^1-CO-R^1 or R^1-CO-OR^1, with <2> a compound of a general formula, $Z(R^2)m$. (In these formulae, R^1,Z or R^2 are same as described above.)

Concretely, they are reaction products of at least one selected from alcohols, ethers, aldehydes, ketones, carboxylic acids and carboxylates, with an aluminium compound. Preferred are reaction products of alcohols with an aluminium compound. For these, preferred are the following: (1) at least one of three R^1's for $(R^1)_3$ is an aromatic hydrocarbon

group having from 6 to 30 carbon atoms; (2) three R^1's for $(R^1)_3$ are all hydrocarbon groups each having at least one carbon atom; (3) three R^1's for $(R^1)_3$ are all aromatic hydrocarbon groups each having from 6 to 30 carbon atoms, preferably phenyl groups; (4) R^2 is an alkyl group having at least 2 carbon atoms. Concretely, more preferred are those where R^1's are all phenyl groups, and R^2 is an isobutyl group. Most preferred is a reaction product of triphenylmethyl alcohol with triisobutylaluminium.

The reaction condition for the compound <1> and the compound <2> is not specifically defined, but is preferably as follows: They are blended in a ratio by mol, compound <1>/compound <2> falling between 1/0.1 and 1/10, more preferably between 1/0.5 and 1/2, even more preferably between 1/0.8 and 1/1.2. The reaction temperature falls between -80°C and 300°C, more preferably between -10°C and 50°C. The reaction time falls between 0.1 minutes and 50 hours, more preferably between 0.1 minutes and 3 hours. The solvent for the reaction is not also specifically defined, but is preferably the same one as that for copolymerization to be effected in the presence of the catalyst.

In place of using the compound of the above-mentioned general formula as the component (C), a compound of the following (C1) and a compound of the following (C2) may be directly added to the site of catalyst production or to the

site of copolymerization to form the component (C) in situ. In this case, the catalyst components are the transition metal compound (A), an oxygen-containing compound, and/or a compound capable of reacting with a transition metal to form an ionic complex(B), the compounds (C1) and (C2), and optionally an alkylating agent (D).

(C1) is least one selected from compounds of a general formula, $(R^1)_3$-C-OR^1, R^1-CO-R^1 or R^1-CO-OR^1; and (C2) is a compound of a general formula, Z(R^2)m. In these formulae, R^1 represents a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, or a carboxyl group, and R^1's may be the same or different, and R^1 may be optionally bonded to each other to form a cyclic structure. Z represents a metal element of Groups 2 to 13; m is an integer, indicating the valency of the metal element Z; and R^2 represents a hydrocarbon group.

Concretely, (C1) is at least one selected from alcohols, ethers, aldehydes, ketones, carboxylic acids and carboxylates, preferably from alcohols; and (C2) is an aluminium compound. For these, preferred are the following: (1) at least one of